# EPA & Hydraulic Fracturing - Dec.13

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| 12/13/2012 | Fracking to resume in Lancashire | ITV2 - Online |
| 12/13/2012 | Energy experts say drilling can be made cleaner | KAAL-TV - Online |
| 12/13/2012 | Fracking: Untangling fact from fiction | LondonWired |
| 12/13/2012 | Energy experts say drilling can be made cleaner | WHEC-TV - Online |
| 12/13/2012 | What Makes Chevron A Tremendous Buying Opportunity? | Seeking Alpha |
| 12/13/2012 | Energy experts say drilling can be made cleaner | WNYT-TV - Online |

# EPA & Hydraulic Fracturing - Dec.13

**Environment and Sustainability**
**Reporter - Online, The**

**12/13/2012**

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Environment and Sustainability

Treatment Wall at Western New York Nuclear Site Receives 2011 Ground Water Remediation Award

11/1/11

AMEC Geomatrix of Amherst, N.Y., has received the National Ground Water Association's 2011 Ground Water Remediation Award for an innovative nuclear waste cleanup project that the company completed with University at Buffalo researchers.

Making Science Exciting: $9.8 Million Program Aims to Change How Science is Taught in Buffalo Schools

10/12/11

A coalition of regional partners has received $9.8 million from the National Science Foundation to expand a promising, teacher-focused initiative that aims to change how science is taught in Buffalo Public Schools. The five-year program, led by the University at Buffalo, Buffalo Public Schools, Buffalo State College and the Buffalo Museum of Science, is called the Interdisciplinary Science and Engineering Partnership (ISEP).

UB Dioxin Expert Served on Institute of Medicine Panel Reviewing Health Effects in Veterans Exposed to Agent Orange

10/6/11

A University at Buffalo expert on dioxin toxicology has just completed his service on the National Academies Institute of Medicine panel on Veterans and Agent Orange. Last week, the panel -- the Committee to Review the Health Effects in Vietnam Veterans of Exposure to Herbicides -- released its 2010 report.

In Yosemite, a New, High-Tech Tool for Mapping Changing Vegetation Patterns

10/5/11

Researchers from three universities have partnered to create a new, high-tech tool for mapping changing plant patterns at Tuolumne Meadows, a mountain meadow in Yosemite National Park.

Following Tropical Storm Irene, Scientists Assess Damage in Flooded New York Communities

9/22/11

In the aftermath of heavy flooding caused by Tropical Storm Irene, University at Buffalo researchers are conducting a damage assessment that could help hard-hit communities in New York plan for future disasters.

UB Creates New Chief Sustainability Officer Post

9/1/11

The University at Buffalo has created a new position of chief sustainability officer to provide leadership and direction for sustainability initiatives as the university works to implement ambitious environmental objectives.

New York's Older Brick Buildings Are Especially Vulnerable to Extreme Events, such as Earthquakes and Hurricanes

# EPA & Hydraulic Fracturing - Dec.13

8/26/11

To get a better idea of just how much damage even a moderate earthquake would cause to unreinforced masonry buildings, earthquake-engineering researchers in the University at Buffalo's MCEER are reconstructing brick walls like those in New York City buildings that are approximately 100 years old.

East Coast Earthquake was Moderate but Significant, says UB Earthquake Researcher

8/23/11

"The earthquake was moderate but significant because we haven't had very many earthquakes of this magnitude in the eastern United States or eastern Canada," said Andre Filiatrault, PhD, director of the University at Buffalo's MCEER (Multidisciplinary Center for Earthquake Engineering Research).

Buffalo Geologist Experiments with Crowdsourcing to Track Water Levels of Local Streams

8/4/11

Inspired by a California researcher who used crowdsourcing to pinpoint the locations of roadkill, a University at Buffalo geologist is turning to the public for help monitoring a different ecological phenomenon: The water levels of streams in Western New York.

What Hiroshima and Nagasaki Reveal About What to Expect from Fukushima Nuclear Disaster

8/1/11

As the 66th anniversaries of the Hiroshima and Nagasaki bombings approach on August 6 and 9, a University at Buffalo biostatistics and public-health expert says that studies of health effects from those events provide some clues to the potential, long-term health impacts of this year's Fukushima nuclear disaster in Japan.

Sustainable Transportation is Focus of IBM Grant Won by UB Professor

5/5/11

Each year, American drivers waste an estimated 3.7 billion hours, or the equivalent of five days, sitting in traffic, burning 2.3 billion gallons of fuel. Students at the University at Buffalo will soon be learning how to reduce that waste, creating less congestion and cleaner air, thanks to an IBM grant to Adel Sadek, PhD, UB associate professor of civil, structural and environmental engineering.

UB Student Association's Green Group Wins 2011 Good Going Award for Best Earth Day Outreach

4/22/11

Scarcely a year into its existence, the Environmental Affairs Department of the University at Buffalo Undergraduate Student Association (SA) has been awarded the 2011 Good Going Award for Best Earth Day Outreach for an Organization.

Fans Can View Falcon Chicks Even As they Grow This Spring

4/12/11

Viewers who log onto the University at Buffalo's falconcam to watch BB and Yankee, UB's resident peregrine falcon mom and dad, will see more of the couple's falcon chicks once they hatch and become mobile, thanks to the installation this spring of a second camera. Watch the live streaming video from both cameras at <a href="http://ubfalcon.buffalo.edu/ ">http://ubfalcon.buffalo.edu/</a>

Windows That Block Heat Only On Hot Days: New Research Brings Us Closer

4/7/11

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New materials science research from the University at Buffalo could hasten the creation of "smart" windows that reflect heat from the sun on hot summer days but let in the heat in colder weather. The findings concern a unique class of synthetic chemical compounds that are transparent to infrared light at lower temperatures, but undergo a phase transition to begin reflecting infrared when they heat up past a certain point. An article detailing some of these discoveries appears today (April 7) on the cover of the Journal of Physical Chemistry Letters.

Air Pollution Data Collected During Beijing Olympics Will Help Determine Effects on Cancer and Cardiopulmonary Diseases

3/30/11

Lina Mu, PhD, assistant professor of social and preventive medicine at the University at Buffalo and a native of China, has received a $1.3 million, three-year grant from the National Institute of Environmental Health Sciences to study the short-term effects of particulate matter (PM) among Beijing residents.

UB's Department of Geology to Present Public Lecture Series on Marcellus Shale

3/28/11

The University at Buffalo's Department of Geology is holding a series of talks about the gas industry, and unconventional gas drilling or hydraulic fracturing and its relationship to the economy and environment of New York State. The lectures, which are free and open to the public, will be held at 8 p.m. each Thursday from March 31 to May 19 in Room 250, Baird Hall on UB's North Campus. To register, go to https://www.ubevents.org/event/marcellus

Iodine-131 exposure puts children's normal growth and development at risk, says UB radiation expert

3/23/11

Alan H. Lockwood, MD, professor of neurology and nuclear medicine in the University at Buffalo's School of Medicine and Biomedical Sciences calls the Japanese Health Ministry's advice not to give tap water to infants "prudent." Lockwood, a board member of Physicians for Social Responsibility, can discuss human health effects of radiation. Six weeks after the Chernobyl accident, he examined survivors at a Moscow hospital.

Japanese Tsunami's Effects Will Change How and Where Future Nuclear Power Plants are Built

3/15/11

The design of next-generation nuclear power plants and other critical energy facilities will undoubtedly be influenced by the Japanese tsunami and its devastating effects on Japan's nuclear reactors, says Michael C. Constantinou, PhD, professor of civil, structural and environmental engineering at the University at Buffalo.

Japanese Earthquake and Tsunami Created a 'Cascading Event'

3/14/11

The magnitude 9.0 earthquake off the coast of northern Japan and the tsunami it triggered demonstrate the need for an integrated approach to preparing for, mitigating and responding to extreme events, say researchers at the University at Buffalo, MCEER and the UB Center for GeoHazards Studies, who spoke to media in a briefing Friday on UB's North Campus. Video commentary from UB faculty experts is available here: http://bit.ly/eeUn1S

A Nano-Solution to Global Water Problem: Nanomembranes Could Filter Bacteria

2/21/11

New nanomaterials research from the University at Buffalo could lead to new solutions for an age-old public health problem: how to separate bacteria from drinking water.

New Study to Use Smart Phones to Track Air Pollution Exposure

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2/8/11

University at Buffalo researchers are creating a new and unusual "app" for the smart phone: tracking air pollution.

Scientists Find Industrial Pollutants in Eastern Lake Erie Carp

1/21/11

Researchers from Upstate New York institutions, including the University at Buffalo, have documented elevated levels of two industrial pollutants in carp in eastern Lake Erie, adding to the body of scientific work demonstrating the lasting environmental effects of human activity and waste disposal on the Great Lakes.

Pest Architecture: MacDowell Colony Fellowship to Support Architect's Work on Pest Wall

1/4/11

University at Buffalo architecture faculty member Joyce Hwang will spend five weeks this spring at the nation's oldest artists' colony, where she will conclude a semester-long sabbatical devoted to a project she hopes to build in Buffalo: Pest Wall.

'Fracking' Mobilizes Uranium in Marcellus Shale, UB Research Finds

10/25/10

Scientific and political disputes over drilling Marcellus shale for natural gas have focused primarily on the environmental effects of pumping millions of gallons of water and chemicals deep underground to blast through rocks to release the natural gas. But University at Buffalo researchers have now found that that process -- called hydraulic fracturing or "fracking"-- also causes uranium that is naturally trapped inside Marcellus shale to be released, raising additional environmental concerns.

Radioactivity from Groundwater will be Filtered for Decades by Volcanic Rocks at Western New York Nuclear Waste Site

10/21/10

A massive treatment wall under construction this week at a Western New York nuclear waste cleanup site will stop radioactive contamination in its tracks for literally decades, according to University at Buffalo engineers who modeled and tested the wall's material.

Scientists Track an Insidious Toxic Substance in China

10/20/10

Scientists at the University at Buffalo and the Chinese University of Mining and Technology/Beijing are tracing a toxic trajectory of excess fluorine, which may be crippling millions of people with skeletal fluorosis in a poor, remote Chinese province. The disease causes chronic joint pain and leads to muscle wasting and crippling spine and major joint deformities. Most often, the source is excess fluorine in polluted water, but in certain areas in China it comes from coal.

Climate Change Remains a Real Threat to Corals

10/7/10

Hopes that coral reefs might be able to survive, and recover from, bleaching caused by climate change may have grown dimmer for certain coral species, according to new research by University at Buffalo marine biologists published online this week in PLoS One.

A Less Toxic, More Efficient Dispersant is Scientist's Goal

9/21/10

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After the failure of the Deepwater Horizon oil well last spring, nearly 2 million gallons of dispersant were released into the Gulf of Mexico to contain the spill. While preliminary reports suggest that it successfully dispersed much of the oil, the long-term effect of such a massive volume of dispersant on ecosystems, wildlife and humans remains to be seen.

Better Assessment of Ash Cloud Hazards is Goal of UB Volcanologist's Research

9/10/10

A University at Buffalo volcanologist who is an expert in volcanic ash clouds and their impact on air travel is available to speak with news media about new scientific research he is conducting on better assessing the hazards of volcanic ash clouds.

What Have Engineers Learned from Katrina?

8/26/10

Five years after Hurricane Katrina devastated New Orleans, James N. Jensen, PhD, University at Buffalo professor of civil, structural and environmental engineering, says that probably the biggest lesson learned from that disaster was that municipalities and citizens now take orders to evacuate much more seriously. Jensen was one of six UB researchers that visited the Gulf Coast soon after Katrina hit, as part of a National Science Foundation-funded reconnaissance mission organized by UB's Multidisciplinary Center for Earthquake Engineering Research.

Restoration of a Central Quadrangle Combines Beauty with Sustainability, Serving as a Model for Future Development at UB

8/13/10

The restoration of a central, 2.3-acre quadrangle at the University at Buffalo by a renowned landscape architecture firm showcases the kind of sustainable landscaping that will define campus grounds as UB implements its long-range plan.

Working Toward the Next Battery Breakthrough

6/7/10

If battery-making is an art, then University at Buffalo scientist Esther Takeuchi is among its most prolific masters, with more than 140 U.S. patents, all in energy storage.

UB Named 'Green Power' Conference Champion for Reducing Its Environmental Footprint

6/3/10

The University at Buffalo has been named the 2009-2010 Individual Conference Champion by the U.S. Environmental Protection Agency (EPA) for using more green power than any other school in the Mid-American Conference.

How Will BP's Corporate Responsibility Ranking Be Affected by Oil Spill Crisis?

5/6/10

A University at Buffalo expert on corporate social responsibility (CSR) is available to comment on how the BP oil spill disaster will affect the company's CSR ranking.

Ash Crisis May Not Be Over, Says Leading Volcanologist

4/21/10

Air travel may be resuming in some European countries, but Michael F. Sheridan, PhD, a leading volcanologist and founder of the University at Buffalo's Center for Geohazards Studies, says that the future behavior of both the volcanic ash cloud and the eruptive system that spurred it is difficult to predict.

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Volcanic Ash Research Shows How Plumes End up in the Jet Stream

4/16/10

A University at Buffalo volcanologist, an expert in volcanic ash cloud transport, published a paper recently showing how the jet stream, the area in the atmosphere that pilots prefer to fly in, also seems to be the area most likely to be impacted by plumes from volcanic ash.

International artists offer visions for solar installation on UB's North Campus

4/14/10

What do a strand of DNA, snow drifts and a terrain of clouds, mountains and ponds have in common? They all provided inspiration for designs submitted by three internationally renowned artists, finalists in a University at Buffalo-sponsored public art competition, for a solar installation to be constructed on UB's North Campus in partnership with the New York Power Authority (NYPA).

UB Student Groups Host Major Environmental Conference

4/13/10

Student environmental activists from Western and Central New York are getting ready to teach, learn and discuss New York State's environmental future at Power Shift New York 2010 on the University at Buffalo North Campus on April 16-18.

UB Law School Students Propose Renewable Energy Solutions for Haiti

4/13/10

University at Buffalo Law School students will suggest ways renewable energy resources can reshape Haiti's future in a free, public forum 5:30 to 7 p.m. Wednesday, April 14 at the Cellino and Barnes Conference Center, 509 John Lord O'Brian Hall, on UB's North Campus.

'Falcon-cam' captures life in UB nest

4/9/10

A new University at Buffalo Web camera is capturing life in a peregrine falcon nest on the UB South Campus in Buffalo, where, for the second consecutive year, a female has laid her eggs.

UB's Ecosystem Experts to Discuss Why West Seneca Wetland Should Be Restored

3/22/10

An important 14-acre wetland and wildlife habitat that is being donated to the town of West Seneca this week is a unique and valuable ecosystem in an urban setting that should be preserved, according to University at Buffalo graduate students and researchers who have developed a restoration plan for it.

UB Professor Named to National Academy of Sciences Panel to Study Thousands of Hazardous Waste Sites

12/8/09

Alan J. Rabideau, PhD, professor of civil, structural and environmental engineering at the University at Buffalo, has been named to a National Academy of Sciences' National Research Council panel that will study hazardous waste sites with "recalcitrant" contamination that hinders their closure.

On Campus, Intersession is Prime Time to Conserve Energy

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12/4/09

With most students headed off campus after final exams, the intersession between the fall and spring semesters provides the perfect opportunity to significantly reduce energy consumption, according to faculty and staff charged with creating and implementing the University at Buffalo's sustainability policies.

By Simulating Gullies, Geographers Discover Ways to Tame Soil Erosion

10/12/09

Dead zones in critical waterways, accelerated loss of arable land and massive famines. They're all caused by the 24 billion tons of soil that are lost every year to erosion, a phenomenon that costs the world as much as $40 billion annually. But predicting where erosion occurs, and thus how to prevent it, is a serious challenge. That's why University at Buffalo geographer Sean Bennett has constructed various systems to model it.

UB Submits Plan to Reach Carbon Neutrality

9/15/09

After two years of planning, drafts, public presentations and feedback, the University at Buffalo today submitted a plan for achieving climate neutrality to the American College and University Presidents' Climate Commitment (ACUPCC).

At UB, A Collaborative Painting Conveys Complex Environmental Science

8/11/09

At the University at Buffalo, students are being trained in the interdisciplinary field of ecosystem restoration, in which they learn how to restore ecosystems damaged by natural or manmade influences. But communicating this new, multidisciplinary science to the outside world -- or even to one another -- has been a challenge.

Western New York Waterways Will Provide Living Laboratory for 2010 Ecosystem Restoration Workshop at UB

7/29/09

Professional scientists and engineers interested in restoring and preserving stream and waterway resources are invited to participate in the University at Buffalo's summer 2010 "Engineering for Ecosystem Restoration" workshop to be held June 7-25.

UB Geologists to Help Communicate the Dangers of Colombian Volcano

6/30/09

During the past decade, residents of Pasto, Colombia, and neighboring villages near Galeras, Colombia's most dangerous volcano, have been threatened with evacuation, but compliance varies. With each new eruption Colombian officials have grown increasingly concerned about the safety of the residents who live within striking distance of Galeras. Now, geologists from the University at Buffalo and the Universidad de Narino have organized a workshop in Colombia designed to tackle the communication issue.

Ice Sheets Can Retreat "In a Geologic Instant," Study of Prehistoric Glacier Shows

6/21/09

Modern glaciers, such as those making up the Greenland and Antarctic ice sheets, are capable of undergoing periods of rapid shrinkage or retreat, according to new findings by paleoclimatologists at the University at Buffalo.

From Implantable Devices to Electric Vehicles, UB Professor Focuses on Power Sources

5/13/09

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A University at Buffalo professor who has garnered more than 140 patents for power sources for tiny biomedical devices now is working to develop batteries that could power much larger devices, such as electric vehicles.

Solar Energy to Power Student Apartments

5/7/09

In its effort to promote renewable energy technologies throughout New York State and in response to Governor Paterson's call to expand New York's renewable energy portfolio, the New York Power Authority today joined with the University at Buffalo to announce a $7.5 million award to the university to construct a 1.1 megawatt solar energy array on UB's North (Amherst) Campus.

Tools for Green Education to be Exhibited by Visual Arts Students

4/20/09

University at Buffalo visual-studies students will present an exhibit on how to keep the UB campus "green" and how to use "play" to address serious issues like racial stereotyping, genetic engineering and the economic crisis.

Endangered Falcons Settle into a Custom-Made Love Nest, Courtesy of UB

4/15/09

A pair of peregrine falcons has settled into its custom-made nesting box situated on top of MacKay Heating Plant on the University at Buffalo's South (Main Street) Campus, thanks to the cooperative efforts of the University at Buffalo and the New York State Department of Environmental Conservation.

UB Puts LEDs to the Test and the Outcome is Unmistakably Brilliant

2/25/09

Lights are shining more brightly on the University at Buffalo's North (Amherst) Campus this winter because the university has swapped some conventional lamps for LEDs, light-emitting diodes.

"SnowMan" Software Developed at UB Helps Keep Snow Drifts Off the Road

1/29/09

Snow that blows and drifts across roadways has long troubled road maintenance crews and commuters alike, creating treacherous driving conditions and requiring additional maintenance resources to mitigate the problem. Now, a University at Buffalo engineer has led the development of "SnowMan," a user-friendly, desktop software package that puts cost-effective solutions to the snow drift problem at the fingertips of highway designers and road maintenance personnel.

By Going "Trayless," UB Student Dining Centers Will Reduce Food Waste 50 Percent

1/13/09

Starting this week, students in three dining centers on the University at Buffalo North (Amherst) Campus will be carrying individual plates -- not trays -- to their tables as part of UB's effort to go "trayless."

More Bang for Less Buck: UB's Supercomputers Go "Green"

1/7/09

In the world of supercomputers, practical considerations like energy consumption have traditionally been overshadowed by the emphasis on high performance. But as energy costs have increased, computational scientists at the University at Buffalo's Center for Computational Research (CCR) have found a way to do more cutting-edge science while consuming less power.

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New Transportation Engineering Emphasis at UB Will Address New York State Systems, Infrastructure

10/17/08

A new transportation research specialization at the University at Buffalo School of Engineering and Applied Sciences will provide New York State's government agencies and municipalities with access to innovative technologies and systems that address critical transportation issues facing the region and the nation.

Forum Seeks Input on How UB Can Achieve Climate Neutrality

10/15/08

In less than a year, the University at Buffalo -- along with hundreds of other colleges and universities nationwide -- will publicly release an institutional action plan describing how UB will go "climate-neutral," reducing or offsetting all of its greenhouse gas emissions. Development and release of the plan is required of all signatories of the American College and University Presidents Climate Commitment, which UB President John B. Simpson signed in March 2007.

Uncertainty Analysis Is Key to Predicting Severity of Floods, Sedimentation

9/3/08

People who live in flood-prone areas naturally aren't thrilled about the uncertainty they must cope with each hurricane season, but research conducted by a University at Buffalo engineer is based on the idea that a better understanding of this uncertainty is key to helping mitigate damage from floods.

On Love Canal Anniversary, Regional Institute Looks at WNY's Environmental Burden

8/6/08

Thirty years after a federal emergency was declared at Love Canal in Niagara Falls, Western New York still grapples with an environmental burden from inherited and ongoing pollution, according to the Regional Institute's latest policy brief, "Thirty Years from Love Canal."

Intelligent Transparency Is a Hit at the Olympics

8/6/08

University at Buffalo architect Annette LeCuyer's recent research is on a remarkable material that is changing the way architects and engineers think about building performance. The material, ETFE, is being showcased at the Beijing Olympics as the material used to construct the National Aquatics Center.

To Find Out What's Eating Bats, Biologist Takes to Barn Rooftops

6/17/08

Bloodsucking pests like bat fleas and bat flies may not sound very appealing to the rest of us, but to University at Buffalo biologist Katharina Dittmar de la Cruz, Ph.D., they are among the most successful creatures evolution has ever produced.

Well-Restored Waterways Attract Engineers and Scientists to Region

6/13/08

Professional engineers and scientists from New York and other states are attending an annual University at Buffalo workshop this month to learn from Western New York's experiences about how best to restore streams and other waterways so they can be enjoyed for generations.

Law School Report Urges State Plan to Harness Offshore Wind Power

5/16/08

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New York State should take advantage of a golden opportunity to become a leader in developing clean, renewable offshore wind power, an alternative energy source that could trigger an economic renaissance and a greener image for the Western New York community, according to a report by a University at Buffalo Law School clinic.

Professors Say Ecological Impact of Bridge Design Is Not Trivial

5/5/08

The latest delay in the construction of a new Peace Bridge between Buffalo and Ft. Erie, Ontario, may be trying the patience of Western New Yorkers, but the region has more to lose than time if it erects a bridge that destroys local habitat, according to two University at Buffalo professors who study environmental impacts of structures.

Policy Makers, Media Blamed for U.S., World Food Insecurity Problem

5/5/08

A food security expert at the University at Buffalo says the worldwide food crisis is a direct result of the choices made by policy makers and the lack of attention paid to the food system and its relationship to global warming and fossil fuels.

UB Underscores Commitment to 'Green Campus' Planning

4/22/08

As environmentalists and citizens nationwide observe Earth Day, the University at Buffalo today reemphasized its commitment to achieving climate neutrality.

Disasters in Small Communities: Researchers Discuss How They Can Help

3/21/08

Whether it's springtime flooding, an infectious disease outbreak or a volcanic eruption, small or rural communities affected by natural disasters often suffer additional hardship because of their size, say organizers of "Natural Disasters in Small Communities: How Can We Help?" a conference to be held by the University at Buffalo on March 29 and 30.

The Greening of Buffalo -- A Path to Economic Growth

2/19/08

Last summer, graduate students in urban planning in the University at Buffalo School of Architecture and Planning and the University of Stuttgart in Germany worked collaboratively to produce a planning proposal designed to promote the expansion of Buffalo's green infrastructure and its economic prosperity while offering a new landscape-planning methodology in response to the destructive October 2006 storm.

New Greenland Ice Sheet Data Will Impact Climate Change Models

2/11/08

A comprehensive new study authored by University at Buffalo scientists and their colleagues for the first time documents in detail the dynamics of parts of Greenland's ice sheet, important data that have long been missing from the ice sheet models on which projections about sea level rise and global warming are based.

Report Is First to Quantify UB's Impact on the Environment

1/24/08

Electricity purchases and on-campus natural gas heating are the single greatest contributors to greenhouse gas emissions at the University at Buffalo, according to the first quantitative study on how UB impacts the environment.

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UB Regional Institute to Partner on Effort to Convene Emerging Leaders of Great Lakes Region

1/15/08

The University at Buffalo Regional Institute is partnering in an effort led by The Brookings Institution and The John R. Oishei Foundation to convene young leaders from the Great Lakes region, including Buffalo, to develop and implement strategies for the region's economic future.

Major Training Grant to Benefit Western New York Ecosystems

11/15/07

The National Science Foundation has chosen the University at Buffalo to receive a prestigious $3.1 million grant to train a new generation of environmental experts, using the ecological treasures of Western New York and the Great Lakes basin as a "living laboratory."

UB Engineering Students Aim to Reduce School-Bus Emissions

11/7/07

Students who are members of the University at Buffalo Chapter of Engineers for a Sustainable World are partnering with Erie County on the Erie County Clean School Bus Initiative, a program that aims to reduce diesel emissions in school buses.

Niagara County Environmental Fund Sets New Planning Grants

10/5/07

The Niagara County Environmental Fund (NCEF) is announcing a total of approximately $775,000 in new funds available for Legacy Projects that will provide long-lasting impact to Niagara County's environment and/or understanding of its environment.

For Primates, Tourism Can Be Less Fun Than a Barrel of Monkeys

7/13/07

Primate tourism, an economic benefit and conservation tool in many habitat countries, has exploded in popularity over the past two decades in places like China, Borneo, Uganda, Rwanda, Northern Sumatra, Madagascar, Gabon and Central America. New research by scientists in the United States, China and Japan, however, has found that some primate tourism practices are inappropriate because they provoke an unprecedented level of adult aggression that is proving deadly for infant monkeys.

UB Center Will Research New Uses for New York State's Old Tires

6/1/07

The University at Buffalo's Center for Integrated Waste Management has been awarded $1.8 million by Empire State Development to expand the use of recycled tires in construction applications through research and education as part of a program that is the state's most comprehensive effort yet to explore and establish new markets for used tires in civil-engineering applications.

Buffalo "City Girl" to Conduct Research in the Arctic

5/22/07

Monica Ridgeway, a University at Buffalo undergraduate entering her senior year, knows that when people think of a scientist, they usually think of a white male in a lab coat; but not too far in the future, she hopes they will envision someone more like herself, a young African-American woman with a head full of braids who is curious about correlations between frozen mud and global warming.

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Working with Inuit Community Is Part of Scientific Expedition

5/16/07

Research on global warming is drawing scientists in increasing numbers to the world's polar regions. But as scientists make more journeys northward, some of them find that their mission now extends beyond the ice or sediment samples they will bring back to their labs to analyze.

Thousands of High School Students Hear Gore's Climate Change Message Friday

4/26/07

Extraordinary: That's how University at Buffalo officials describe the response of area high schools to UB's invitation to hear former vice president and environmental activist Al Gore speak on what could be the defining issue of their generation: climate change.

Enviro Fair Will Showcase Green Solutions, Products Prior to Al Gore Lecture at UB

4/24/07

Just about anything anybody needs to start "going green" -- from energy-efficient light bulbs to fast-growing trees -- will be exhibited at an Enviro Fair to be held at 6 p.m. on April 27 in the lobby of the Alumni Arena on the University at Buffalo's North (Amherst) Campus.

'Watch Your Steps' Pervasive Game Aims to Lower Carbon Footprints

4/24/07

In the name of raising environmental awareness, enterprising University at Buffalo students are turning their campus into a virtual -- and real -- playground this week as they conduct a final project for their class in "Pervasive Gaming," an emerging game genre in which virtual and real-life play come together.

Straw Greenhouse Rises on Buffalo's West Side

4/20/07

Contrary to the unhappy experience of the first little pig, straw bale is a strong, cost-effective, exceptionally insulating, fire-resistant, sustainable, natural building system. University at Buffalo architecture students and community members -- cold, covered in mud and stuck with hay -- recently raised 130 50-pound "two-string" straw bales that will constitute the load-bearing walls of a community greenhouse on Buffalo's West Side.

Students Fight Global Warming One Light Bulb at a Time

3/22/07

A light bulb exchange program that encourages students to trade in their old incandescent bulbs for energy-efficient compact fluorescent lamps (CFLs) is reaping economic and environmental benefits for the University at Buffalo only months after the initial launch.

UB President Signs National Accord on Climate Commitment

3/15/07

University at Buffalo President John B. Simpson has committed the university to taking a leadership role in fighting global warming by signing the American College and University Presidents Climate Commitment.

To Boost Health of Great Lakes, Study Focuses on Circulation Patterns

# EPA & Hydraulic Fracturing - Dec.13

3/5/07

A researcher with the University at Buffalo's Great Lakes Program is leading a study focusing on how flow patterns impact the health of lakes Erie and Ontario with the goal of better understanding the relationship between physical forces in the lakes and their biological resources.

"Environmental Milestone" Reaps Both Kinds of Green Benefits

2/22/07

More than a decade ago, the University at Buffalo made a major investment in reducing greenhouse gas emissions through a $17 million comprehensive energy-conservation project. With the final payment made on the loan that partially funded the project, UB now will realize $4 million in annual energy-cost savings as a result of the work that was done.

Deep in Arctic Mud, Geologists Find Strong Evidence of Climate Change

1/18/07

How severe will global warming get? Jason P. Briner is looking for an answer buried deep in mud dozens of feet below the surface of lakes in the frigid Canadian Arctic. His group is gathering the first quantitative temperature data over the last millennium from areas in extreme northeastern sections of the Canadian Arctic, such as Baffin Island.

Lakes Have Not Developed Ice Covers This Winter

1/11/07

The freeze dates for many small- and intermediate-sized lakes in the Northeast and parts of the Midwest will come later than usual this year, in part as a reflection of continuing global warming, but also because of a stronger-than-expected El Nino phenomenon, says a University at Buffalo limnologist, a scientist who studies inland bodies of water.

UB Unveils Its First Solar Electric System

11/2/06

Starting this month, a portion of the electrical power that illuminates classrooms, hallways and computer screens in the University at Buffalo's Norton Hall will be generated by a dramatically different source: the sun.

New UB Degree Program in Evolution, Ecology And Behavior

10/17/06

A new multidisciplinary graduate program in evolution, ecology and behavior that focuses on the interactions between organisms and their environments over time is being offered by the University at Buffalo's College of Arts and Sciences.

Visionary School Takes Shape in the Himalayas

9/12/06

What is widely regarded as one of the most beautiful, thoughtful and functional "green" projects in the world is taking shape in the ancient kingdom of Ladakh, a remote region high in the Indian Himalayas, west of Tibet.

Temperatures, Not Hotels, Likely Alter Niagara Falls' Mist

4/13/06

What's up with the mist? When the Niagara Parks Commission posed that question back in 2004, the concern was that high-rise hotels on the Canadian side of Niagara Falls were contributing to the creation of more mist, obscuring the very view that millions of tourists flock there every year to see. Now University at Buffalo geologists have determined that the high-rise hotels are probably not to blame.

# EPA & Hydraulic Fracturing - Dec.13

Pharmaceutical Metabolites Found in Wastewater

3/15/06

University at Buffalo chemists have for the first time identified at wastewater treatment plants the metabolites of two antibiotics and a medical imaging agent.

UB Is One of the EPA's Top 10 Green Partners

3/9/06

Imagine wiping 1,500 cars -- and all their fossil fuel emissions -- right off the road. That's equivalent to what the University at Buffalo has accomplished as a major green power purchaser, according to the U.S. Environmental Protection Agency (EPA), which just named UB one of its Top 10 College and University Green Power Partners.

At Old Volcanoes, Slopes Turn Mudflows Deadly

2/23/06

Mudflows initiated by natural processes at old, inactive volcanoes are some of the most lethal geologic phenomena and they contributed to last week's tragic mudslide in Guinsaugon, Philippines, according to a University at Buffalo scientist whose team has developed advanced computer models of mudflows.

UB Saves $21,000 Annually with "Green" Vending Machines

2/17/06

The University at Buffalo is leading the way in energy savings as the first university in the country to completely replace its campus-wide beverage vending machines with green technology, saving $21,000 a year on electricity costs.

Finally, Male Water Fleas Exposed

12/6/05

Male water fleas that scientists have never seen have made their debut in a University at Buffalo laboratory, providing biologists with their first glimpse of these elusive organisms. The UB research, opens a new window on the biological diversity of several species of water fleas that play major roles in freshwater food webs.

Scientists Focus on Improving Homeland Resilience

11/8/05

Entire rooms black with mold. Boats sitting in trees, miles from shore. Hospitals with windows broken -- not just by the storm, but by patients and staff desperate for fresh air. City officials standing at major intersections wearing sandwich boards that said "Boil water" since there was no other way to get the word out. Enough solid waste to fill 11 World Trade Center Towers. These are some of the vivid pictures that were drawnat the University at Buffalo by six researchers from various disciplines who presented findings to colleagues about what they saw during reconnaissance trips to the Gulf Coast in September and October.

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# EPA & Hydraulic Fracturing - Dec.13

**Fracking to resume in Lancashire**
**ITV2 - Online**

**12/13/2012**

Main page content

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The government has given the go-ahead for controversial gas extracting technique fracking to in Lancashire.

The company, Cuadrilla, was stopped from fracking after two tremors on the Fylde Coast.

There was concern after a documentary showed people able to light water coming from their taps.

In the US, the Environmental Protection Agency (EPA) investigated complaints from residents in Pavillion, Wyoming who complained that fracking was affecting their drinking water.

The firm say the technique is safe, will create jobs but won't necessarily cheapen our gas bills. Play video for more.

The Government has given the green light for "fracking" for shale gas to resume in Lancashire.

Moves by gas company Cuadrilla to exploit the unconventional gas were put on hold 18 months ago after fracking, which uses high-pressure liquid to split rock and extract gas, caused two small earthquakes.

The long expected announcement that the government will allow fracking companies to continue attempts at exploitation of unconventional gas is the start of a major battle over what sort of world we will leave to our children.

The government and industry's promises of cheap, abundant gas are deluded. In the US the gas bubble has already burst with fracking companies on the verge of bankruptcy. Drilling has ground to a halt and gas prices have doubled since the begining of the year"

The governments strategy of relying on fracking to fuel a new wave of gas fired power stations is utterly insane.

_ Lilly Morse, Campaigner, Frack Off

Cuadrilla sees today's announcement as a significant step in the future development of the UK's onshore gas industry.

The company is ready to move ahead with its plans, involving the hydraulic fracturing and flow testing of a number of wells in Lancashire in 2013.

Before these further exploration and testing plans can proceed, Cuadrilla will work closely with DECC and its representatives, Lancashire County Council, the Environment Agency, the HSE, the local communities and other relevant parties to obtain regulatory approvals and planning permission.

"Today's news is a turning point for the country's energy future. Shale gas has the potential to create jobs, generate tax revenues, reduce our reliance on imported gas, and improve our balance of payments."

"Our exploration has shown that under Lancashire there is a belt of gas-filled shale over one mile thick. Today's decision will allow continued exploration and testing of the UK's very significant shale resources in a way that fulfils the highest environmental and community standards."

_ Francis Egan, CEO of Cuadrilla Resources.

# EPA & Hydraulic Fracturing - Dec.13

In cooperation with DECC, Cuadrilla has already taken a number of steps to further reduce environmental risk. Key among these is an advanced system for seismic monitoring that allows Cuadrilla and DECC to closely monitor and regulate hydraulic fracturing activity.

The Government has given the green light for "fracking" for shale gas to resume in Lancashire.

Greenpeace energy campaigner Leila Deen said: "George Osborne's dream of building Dallas in Lancashire is dangerous fantasy. He is not JR Ewing and this is not the US."

"Energy analysts agree the UK cannot replicate the American experience of fracking, and that shale gas will do little or nothing to lower bills.

"Pinning the UK's energy hopes on an unsubstantiated, polluting fuel is a massive gamble and consumers and the climate will end up paying the price."

_ Greenpeace energy campaigner Leila Deen

The go-ahead for fracking to resume came as the Government's climate advisers warned that a continued reliance on gas would push up consumer bills by hundreds of pounds more than if there was a shift towards low-carbon power such as wind.

The Committee on Climate Change's chief executive, David Kennedy, dismissed claims that exploiting shale gas in the UK and Europe could push down gas prices.

He said it was not a "game changer" on this side of the Atlantic as it could only meet a relatively small share of gas demand.

Page footer

# EPA & Hydraulic Fracturing - Dec.13

**Energy experts say drilling can be made cleaner**
**KAAL-TV - Online**

**12/13/2012**

Posted at: 12/11/2012 1:36 AM

By KEVIN BEGOS and SETH BORENSTEIN

Energy experts say drilling can be made cleaner

(AP) PITTSBURGH - In the Colorado mountains, a spike in air pollution has been linked to a boom in oil and gas drilling. About 800 miles away on the plains of north Texas, there's a drilling boom, too, but some air pollution levels have declined. Opponents of drilling point to Colorado and say it's dangerous. Companies point to Texas and say drilling is safe.

The answer appears to be that drilling can be safe or it can be dangerous. Industry practices, enforcement, geography and even snow cover can minimize or magnify air pollution problems.

"It's like a vehicle. Some cars drip oil," said Russell Schnell, deputy director of the federal Earth System Research Laboratory in Boulder, Colo. "You have wells that are absolutely tight. And you have other places where a valve gives out, and you have huge leaks."

The good news, nearly all sides agree, is that the technology exists to control methane gas leaks and other air pollution associated with drilling. The bad news is that the industry is booming so rapidly that some companies and some regulators can't seem to get ahead of the problems, which could ultimately cost billions of dollars to remedy.

The worries about what drilling does to the air are both global and local, with scientists concerned about the effects on climate change as well as the possible health consequences from breathing smog, soot and other pollutants.

Hydraulic fracturing, or fracking, has made it possible to tap into deep reserves of oil and gas but has also raised concerns about pollution. The industry and many federal and state officials say the practice is safe when done properly, but environmental groups and some scientists say there hasn't been enough research.

Some environmentalists say if leaks and pollution can be minimized, the boom has benefits, since gas burns much cleaner than coal, emitting half the carbon dioxide.

Al Gore told The Associated Press that it's "not irresponsible" to look at gas as a short-term substitute for coal-fired electricity. But Gore added that the main component of gas, methane, is a more potent heat-trapping greenhouse gas than CO2. That means that if large quantities leak, the advantage over coal disappears, the former vice president said.

In Colorado, the National Oceanic and Atmospheric Administration estimated that 4 percent of methane was leaking from wells, far more than previously estimated, and that people who live near production areas may be exposed to worrisome levels of benzene and other toxic compounds present in oil and gas.

Across the industry, the technology for stopping leaks can be as simple as fixing seals and gaskets, or it can involve hundreds of millions of dollars of new construction.

"I think it's totally fixable," Schnell said. "At least the bigger companies, they are really on top of this."

Gore added that when companies capture leaking methane, they end up with more to sell. "So there's an economic incentive to capture it and stop the leaking," he said.

Another major source of worry is the industry's practice of burning off, or flaring, natural gas that comes out of the ground as a byproduct of oil drilling. Over the past five years, the U.S. has increased the amount of flared and wasted gas more than any other nation, though Russia still burns off far more than any other country.

# EPA & Hydraulic Fracturing - Dec.13

In some places, energy companies haven't invested in the infrastructure needed to capture and process the gas because the oil is more valuable.

In the Bakken Shale oil fields of North Dakota, for example, about 30 percent of the natural gas is flared off because there aren't enough pipelines yet to carry it away. The amount of gas wasted in the state is estimated at up to $100 million a year. And officials in North Dakota said last month that the situation there might not be completely solved until the end of the decade.

NOAA scientists also say natural gas production has contributed to unusual wintertime smog in the West, particularly in regions surrounded by mountains, and especially in snowy areas.

Ozone, the main component in smog, typically forms when sunlight "cooks" a low-lying stew of chemicals such as benzene and engine exhaust. Normally, the process doesn't happen in cold weather.

But NOAA researchers found that when there's heavy snowfall, the sun passes through the stew, then bounces off the snow and heats it again on the way back up. In some cases, smog in remote areas has spiked to levels higher than those in New York or Los Angeles.

In open regions that are more exposed to wind, the ozone vanishes, sometimes within hours or a day. But in Utah basins it can linger for weeks, Schnell said.

Evidence that gas drilling air pollution can be managed _ but that more work may still need to be done _ comes from north Texas, where the shale gas boom began around Fort Worth about 10 years ago.

Mike Honeycutt, director of toxicology for the Texas Commission on Environmental Quality, said that in the early years of the boom, people complained about excessive pollution. Regulators started using special hand-held cameras to pinpoint pollution sources and found some sites with high levels of benzene and other volatile organic compounds.

"It was a maintenance issue. They were in such a hurry, and they were drilling so fast, they were not being as vigilant as they should have been," Honeycutt said. "So we passed new rules that made them take more notice."

Honeycutt said the cameras, which cost about $100,000 each, have revolutionized the way inspectors monitor sites. Texas has also installed nine 24-hour air monitoring stations in the drilling region around Fort Worth, and more are on the way. Now, he said, even as drilling has increased, summer ozone levels have declined.

In 1997 there were only a few hundred shale gas wells in the Fort Worth area and the summertime ozone level hit 104 parts per billion, far above the national standard then of 85. By 2012 the number of wells had risen to about 16,000, but preliminary results show the ozone level was 87 last summer.

There's still room for improvement, Honeycutt said, but the trend is clear, since the monitoring is no longer showing worrisome levels of benzene, either.

The Environmental Protection Agency isn't completely convinced. This year the federal agency cited Wise County in north Texas, a heavy gas drilling area, for violating ozone standards. Industry groups and the state have argued that the finding was based on faulty science.

So far, NOAA scientists say they haven't found signs that gas or oil drilling is contributing to a global rise in methane.

"Not the mid-latitudes where the drilling is being done, which is interesting," said James Butler, head of global monitoring for NOAA.

The EPA has passed new rules on oil and gas emissions that are scheduled to go into effect in 2015, and in 2012 it reached legal settlements that will require companies to spend more than $14 million on pollution controls in Utah and Wyoming. Colorado, Texas and other states have passed more stringent rules, too.

Carlton Carroll, a spokesman for the American Petroleum Institute, a lobbying group for the oil and gas industry, pointed out that many companies started developing the equipment to limit methane and other pollution before the EPA rule.

"API is not opposed to controls on oil and gas operations so long as the controls are cost-effective, allow sufficient lead

# EPA & Hydraulic Fracturing - Dec.13

time and can be implemented safely," Carroll said in an email, adding that the industry has requested some technical clarifications to the rule and is working with EPA on those.

Prasad Kasibhatla, a professor of environmental chemistry at Duke University, said that controlling gas drilling pollution is "technically solvable" but requires close attention by regulators.

"One has to demonstrate that it is solved, and monitored," he said.

# EPA & Hydraulic Fracturing - Dec.13

## Fracking: Untangling fact from fiction
## LondonWired

### 12/13/2012

The government has announced that it will remove a temporary ban on hydraulic fracturing across the UK.

Fracking, as it is known, is a controversial technique for recovering gas and oil from shale rock. But how concerned should people be about the environmental impacts?

Hydraulic fracturing is widely used across the US to exploit reserves of oil and gas that were once believed to be inaccessible.

But in the UK, the use of fracking was halted in 2011 after some minor earthquakes near Blackpool, in north-west England, were attributed to test wells being drilled by the energy company Cuadrilla.

The company carried out their own report into the incident and found that it was "most likely" that the seismic events were caused by the direct injection of fluid into the fault zone.

The Department for Energy and Climate Change (Decc) then asked three experts to make an independent assessment. Their report indicated that future earthquakes as a result of fracking could not be ruled out - but the risk from these tremors was low and structural damage extremely unlikely. The experts also made recommendations on how to minimise these risks.

Another review, carried out by the Royal Society and the Royal Academy of Engineering, also gave fracking the green light - provided that strong regulations were in place.

Earthquake issues have also been attributed to fracking in British Columbia, Canada, and in some parts of the United States.

But according to the Francis Egan, chief executive of Cuadrilla, there needs to be a sense of proportion about the risk of earthquakes from fracking.

"If you look at the British Geological Survey website, in the last two months alone there were nine events of the same magnitude," he told BBC News,.

"We have a host of measures in place to ensure there is no recurrence."

It is expected that if fracking resumes in the UK, the government will insist on constant monitoring and a threshold of seismic activity.

If fracking causes a tremor above the limit, it could lead to a suspension of drilling.

Many people have concerns about that the fluid used in fracking. It is normally a mixture of water, sand and some chemicals that is pumped into the well under high pressure to force the gas from the rock.

There have been worries that the fluid is dangerous. Suspicions that were fuelled by the reluctance of many companies in the US to disclose what's exactly in the mixture. Democrats in the US Congress released a report that detailed some 750 different chemicals and other components used in fracking fluid.

In the UK, Cuadrilla have been open about what is in their fracking mixture.

But the liquid going down into the well isn't the whole story.

Fracking requires tens of millions of litres of fluid - much of what goes down the well comes back up as "produced water".

It can contain a mixture of organic hydrocarbons, and naturally occurring radioactive material.

# EPA & Hydraulic Fracturing - Dec.13

In the US, this water is often stored in open pits before it is processed but in the UK they will have to be covered.

In many locations where the facilities don't exist on site, the water has to be trucked away to be cleaned.

Prof Richard Davies, director of the Durham Energy Institute, says that this would also be the likely scenario in the UK if fracking becomes more widespread.

"It'll be a bit like Pennsylvania, where a whole industry has grown up to deal with waste water." he said. "We'll have to clean the water if we want to re-use it."

The International Energy Agency (IEA) has suggested ways of cleaning up the water that is used in shale gas exploitation. The IEA says that the technologies to address these issues exists or are in development and if they are adopted, fracking might be more widely accepted.

The other water issue associated with fracking is the potential of the technology to contaminate existing drinking supplies. In the US, the Environmental Protection Agency (EPA) investigated complaints from residents in Pavillion, Wyoming who complained that fracking was affecting their drinking water.

Their initial report concluded that there was a link with the waste-water produced by drilling for gas. Further investigations into this incident haven't yet conclusively show the sources of contamination.

There have been many other reports of a similar impact on drinking water from people living near fracking operations across the US.

Prof Davies says that when water has been contaminated in the US it has not been the fault of fracking. It has been through cracks in the wells or surface spillages.

"We have been distracted by hydraulic fracturing," he told BBC News. "It is really at the bottom of the list when it comes to contaminating water supplies. Drilling wells properly and cementing them are the critical things."

In a report published in the journal Marine and Petroleum Geology, Prof Davies found that in the UK the possibility of fracking causing rogue fractures that would allow methane gas to contaminate water was a fraction of 1%.

The study recommended a minimum vertical separation distance between fracking wells and water supplies of 600 metres (2,000ft).

Some scientists have proposed adding chemical tracers to fracking fluids as a way of confirming that any contamination of drinking water comes from the drilling process.

Horizontal drilling can offer many advantages to the gas extraction process, allowing wells to be drilled in several directions from one pad. But there are downsides as well. Horizontal drilling means companies can extract oil and gas from locations that were once inaccessible, and these may be under built up areas as they are in several cities in the US.

The disruption that this can cause in a built up area is considerable. Road traffic, drilling noise, and the danger of accidental fuel spillages are all associated with the process.

Mark Boling, executive vice president with Southwestern Energy - a US oil and gas exploration company that uses fracking technology - says the fracking industry needs to be more honest about the real impacts.

"We need to think more innovatively above the ground," he told BBC News. "We need to figure how to do better on surface impacts, water supply, water transfer and disposal, drilling locations - we really didn't come out and say yes these are risks, and there are obstacles."

Mr Boling says that in many parts of the US people have accepted the technology because they have seen a direct financial benefit from selling mineral rights. That's not something that pertains in the UK.

"You are going to have even more difficulty where the minerals are owned by the Crown," he told BBC News, "if you don't have something that is going to put money in the pockets of people that are suffering through all the trucks, road damage

the compressor noise all these sorts of things."

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# EPA & Hydraulic Fracturing - Dec.13

## Energy experts say drilling can be made cleaner
## WHEC-TV - Online

### 12/13/2012

Energy experts say drilling can be made cleaner

Posted at: 12/11/2012 2:36 AM

By KEVIN BEGOS and SETH BORENSTEIN

(AP) PITTSBURGH - In the Colorado mountains, a spike in air pollution has been linked to a boom in oil and gas drilling. About 800 miles away on the plains of north Texas, there's a drilling boom, too, but some air pollution levels have declined. Opponents of drilling point to Colorado and say it's dangerous. Companies point to Texas and say drilling is safe.

The answer appears to be that drilling can be safe or it can be dangerous. Industry practices, enforcement, geography and even snow cover can minimize or magnify air pollution problems.

"It's like a vehicle. Some cars drip oil," said Russell Schnell, deputy director of the federal Earth System Research Laboratory in Boulder, Colo. "You have wells that are absolutely tight. And you have other places where a valve gives out, and you have huge leaks."

The good news, nearly all sides agree, is that the technology exists to control methane gas leaks and other air pollution associated with drilling. The bad news is that the industry is booming so rapidly that some companies and some regulators can't seem to get ahead of the problems, which could ultimately cost billions of dollars to remedy.

The worries about what drilling does to the air are both global and local, with scientists concerned about the effects on climate change as well as the possible health consequences from breathing smog, soot and other pollutants.

Hydraulic fracturing, or fracking, has made it possible to tap into deep reserves of oil and gas but has also raised concerns about pollution. The industry and many federal and state officials say the practice is safe when done properly, but environmental groups and some scientists say there hasn't been enough research.

Some environmentalists say if leaks and pollution can be minimized, the boom has benefits, since gas burns much cleaner than coal, emitting half the carbon dioxide.

Al Gore told The Associated Press that it's "not irresponsible" to look at gas as a short-term substitute for coal-fired electricity. But Gore added that the main component of gas, methane, is a more potent heat-trapping greenhouse gas than CO2. That means that if large quantities leak, the advantage over coal disappears, the former vice president said.

In Colorado, the National Oceanic and Atmospheric Administration estimated that 4 percent of methane was leaking from wells, far more than previously estimated, and that people who live near production areas may be exposed to worrisome levels of benzene and other toxic compounds present in oil and gas.

Across the industry, the technology for stopping leaks can be as simple as fixing seals and gaskets, or it can involve hundreds of millions of dollars of new construction.

"I think it's totally fixable," Schnell said. "At least the bigger companies, they are really on top of this."

Gore added that when companies capture leaking methane, they end up with more to sell. "So there's an economic incentive to capture it and stop the leaking," he said.

Another major source of worry is the industry's practice of burning off, or flaring, natural gas that comes out of the ground as a byproduct of oil drilling. Over the past five years, the U.S. has increased the amount of flared and wasted gas more than any other nation, though Russia still burns off far more than any other country.

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In some places, energy companies haven't invested in the infrastructure needed to capture and process the gas because the oil is more valuable.

In the Bakken Shale oil fields of North Dakota, for example, about 30 percent of the natural gas is flared off because there aren't enough pipelines yet to carry it away. The amount of gas wasted in the state is estimated at up to $100 million a year. And officials in North Dakota said last month that the situation there might not be completely solved until the end of the decade.

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Evidence that gas drilling air pollution can be managed _ but that more work may still need to be done _ comes from north Texas, where the shale gas boom began around Fort Worth about 10 years ago.

Mike Honeycutt, director of toxicology for the Texas Commission on Environmental Quality, said that in the early years of the boom, people complained about excessive pollution. Regulators started using special hand-held cameras to pinpoint pollution sources and found some sites with high levels of benzene and other volatile organic compounds.

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The EPA has passed new rules on oil and gas emissions that are scheduled to go into effect in 2015, and in 2012 it reached legal settlements that will require companies to spend more than $14 million on pollution controls in Utah and Wyoming. Colorado, Texas and other states have passed more stringent rules, too.

Carlton Carroll, a spokesman for the American Petroleum Institute, a lobbying group for the oil and gas industry, pointed out that many companies started developing the equipment to limit methane and other pollution before the EPA rule.

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# EPA & Hydraulic Fracturing - Dec.13

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"One has to demonstrate that it is solved, and monitored," he said.

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# EPA & Hydraulic Fracturing - Dec.13

## What Makes Chevron A Tremendous Buying Opportunity?
## Seeking Alpha

### 12/13/2012

Given the decline in profitability and production volumes for Chevron's (CVX) oil business, its efforts in the shale gas exploration is a positive step. The recent shale gas exploration projects in China are expected to bring revenue growth for the company. The strong position of the company in terms of its refineries in the Asian Pacific region is considered an important catalyst for its short-term growth. Chevron's plan to capitalize on its excessive cash through investing in lucrative projects reaffirms our bullish stance on the stock.

The extraction of natural gas through the innovative process of hydraulic fracturing has lead to excess supply in the last six months. Hydraulic fracturing is the unique process of extracting natural gas by exerting pressure on fluids in the rock layer. The government's efforts towards natural gas to oil switch would be highly beneficial for shale gas producers.

Moreover, the company is expected to strengthen its position in the oil market. In our opinion, the high exposure of the company in deepwater exploration would prove to be instrumental in driving its future growth. The Environmental Protection Agency (EPA) imposed a ban on awarding new contracts in the United States to BP due to the tragic Gulf of Mexico oil spill incident. We believe Chevron is in a good place to win the contracts being denied to BP in the auction expected to take place in March next year. This would help the company obtain some of BP's market share and start supplying oil to the United States government and armed forces.

We maintained our bullish stance on CVX due to some key developments that took place in the third quarter of the year, pertaining to the company's upstream business segment. These developments are as follows:

CVX finished the acquisition of Acme and Clio fields in the Camarvon Basin of Australia, which would create further expansion opportunities.

The company sold its non-strategic equity interest in the Wheatstone project to Tokyo Electric.

Cheveron announced 2 natural gas discoveries, namely Satyr-4 and Satyr-2, at the Camarvon Basin. These discoveries would enhance its production volumes considerably.

The company secured 55% operatorship and interest in 2 deepwater exploration blocks in Sierra Leone.

In the United States, the company proclaimed an agreement regarding the acquisition of some new land in the Delaware Basin. The company is the largest leaseholder in the Delaware Basin and this acquisition initiative would further strengthen its position in the area.

Upstream Business Segment:

The company registered oil equivalent production of 2.52 mmboe/d in Q3 2012 compared to 2.6 mmboe/d in the same quarter of last year. It saw an increase in production in its projects involving ramp-ups in the United States, Nigeria and Thailand. However, the impact of this increase was offset by the decline experienced by its normal field projects, the operational shut down at the Gulf of Mexico due to the storm, as well as due to maintenance-related downtime. The company's management expects production to increase in the coming period, with the expected increase in energy demand. According to Citi Research, Chevron's oil production will increase to up to 2.6 million barrels of oil equivalent per day by the end of fiscal year 2012.

Downstream Business Segment:

The company's earnings from its Downstream Business Segment declined to $456 million in Q3 2012, from $704 million in Q3 2012. The decline was witnessed primarily because of the considerable decrease in margins on the sale of refined products and increase in operating margins. Output for crude oil refineries also decreased due to a fire at the Richmond refinery in California. In our opinion, the expected increase in oil consumption will enhance the company's profitability for this segment as well.

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The company's margins have been increasing continuously since 2009 due to the rapid increase in sales. In our opinion, its margins will improve in the coming years through cost efficiencies in its drilling activities. However, the company's capital expenditure increased by $1.9 billion over the period of the previous year. Out of the company's total expenditure, 90% went towards its Upstream Business segment. The company's profitability is expected to increase in the coming period with the structural transformation towards natural gas.

Chevron's return on invested capital decreased considerably due to the decline in oil production volumes. The restructuring efforts towards shale gas exploration and production are expected to improve the returns of the company.

Valuation:

The stock is trading at an EV/EBITDA of 4x, at a premium when compared to Total SA's (TOT) 3.18x. However, it is trading at a discount to BP PLC's (BP) 4.41x, Exxon Mobil (XOM) and Royal Dutch Shell's (RDS.A) EV/EBITDA of 6.18x each.

# EPA & Hydraulic Fracturing - Dec.13

## Energy experts say drilling can be made cleaner
## WNYT-TV - Online

### 12/13/2012

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By KEVIN BEGOS and SETH BORENSTEIN

(AP) PITTSBURGH - In the Colorado mountains, a spike in air pollution has been linked to a boom in oil and gas drilling. About 800 miles away on the plains of north Texas, there's a drilling boom, too, but some air pollution levels have declined. Opponents of drilling point to Colorado and say it's dangerous. Companies point to Texas and say drilling is safe.

The answer appears to be that drilling can be safe or it can be dangerous. Industry practices, enforcement, geography and even snow cover can minimize or magnify air pollution problems.

"It's like a vehicle. Some cars drip oil," said Russell Schnell, deputy director of the federal Earth System Research Laboratory in Boulder, Colo. "You have wells that are absolutely tight. And you have other places where a valve gives out, and you have huge leaks."

The good news, nearly all sides agree, is that the technology exists to control methane gas leaks and other air pollution associated with drilling. The bad news is that the industry is booming so rapidly that some companies and some regulators can't seem to get ahead of the problems, which could ultimately cost billions of dollars to remedy.

The worries about what drilling does to the air are both global and local, with scientists concerned about the effects on climate change as well as the possible health consequences from breathing smog, soot and other pollutants.

Hydraulic fracturing, or fracking, has made it possible to tap into deep reserves of oil and gas but has also raised concerns about pollution. The industry and many federal and state officials say the practice is safe when done properly, but environmental groups and some scientists say there hasn't been enough research.

Some environmentalists say if leaks and pollution can be minimized, the boom has benefits, since gas burns much cleaner than coal, emitting half the carbon dioxide.

Al Gore told The Associated Press that it's "not irresponsible" to look at gas as a short-term substitute for coal-fired electricity. But Gore added that the main component of gas, methane, is a more potent heat-trapping greenhouse gas than CO2. That means that if large quantities leak, the advantage over coal disappears, the former vice president said.

In Colorado, the National Oceanic and Atmospheric Administration estimated that 4 percent of methane was leaking from wells, far more than previously estimated, and that people who live near production areas may be exposed to worrisome levels of benzene and other toxic compounds present in oil and gas.

Across the industry, the technology for stopping leaks can be as simple as fixing seals and gaskets, or it can involve hundreds of millions of dollars of new construction.

"I think it's totally fixable," Schnell said. "At least the bigger companies, they are really on top of this."

Gore added that when companies capture leaking methane, they end up with more to sell. "So there's an economic incentive to capture it and stop the leaking," he said.

Another major source of worry is the industry's practice of burning off, or flaring, natural gas that comes out of the ground as a byproduct of oil drilling. Over the past five years, the U.S. has increased the amount of flared and wasted gas more than any other nation, though Russia still burns off far more than any other country.

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In some places, energy companies haven't invested in the infrastructure needed to capture and process the gas because the oil is more valuable.

In the Bakken Shale oil fields of North Dakota, for example, about 30 percent of the natural gas is flared off because there aren't enough pipelines yet to carry it away. The amount of gas wasted in the state is estimated at up to $100 million a year. And officials in North Dakota said last month that the situation there might not be completely solved until the end of the decade.

NOAA scientists also say natural gas production has contributed to unusual wintertime smog in the West, particularly in regions surrounded by mountains, and especially in snowy areas.

Ozone, the main component in smog, typically forms when sunlight "cooks" a low-lying stew of chemicals such as benzene and engine exhaust. Normally, the process doesn't happen in cold weather.

But NOAA researchers found that when there's heavy snowfall, the sun passes through the stew, then bounces off the snow and heats it again on the way back up. In some cases, smog in remote areas has spiked to levels higher than those in New York or Los Angeles.

In open regions that are more exposed to wind, the ozone vanishes, sometimes within hours or a day. But in Utah basins it can linger for weeks, Schnell said.

Evidence that gas drilling air pollution can be managed _ but that more work may still need to be done _ comes from north Texas, where the shale gas boom began around Fort Worth about 10 years ago.

Mike Honeycutt, director of toxicology for the Texas Commission on Environmental Quality, said that in the early years of the boom, people complained about excessive pollution. Regulators started using special hand-held cameras to pinpoint pollution sources and found some sites with high levels of benzene and other volatile organic compounds.

"It was a maintenance issue. They were in such a hurry, and they were drilling so fast, they were not being as vigilant as they should have been," Honeycutt said. "So we passed new rules that made them take more notice."

Honeycutt said the cameras, which cost about $100,000 each, have revolutionized the way inspectors monitor sites. Texas has also installed nine 24-hour air monitoring stations in the drilling region around Fort Worth, and more are on the way. Now, he said, even as drilling has increased, summer ozone levels have declined.

In 1997 there were only a few hundred shale gas wells in the Fort Worth area and the summertime ozone level hit 104 parts per billion, far above the national standard then of 85. By 2012 the number of wells had risen to about 16,000, but preliminary results show the ozone level was 87 last summer.

There's still room for improvement, Honeycutt said, but the trend is clear, since the monitoring is no longer showing worrisome levels of benzene, either.

The Environmental Protection Agency isn't completely convinced. This year the federal agency cited Wise County in north Texas, a heavy gas drilling area, for violating ozone standards. Industry groups and the state have argued that the finding was based on faulty science.

So far, NOAA scientists say they haven't found signs that gas or oil drilling is contributing to a global rise in methane.

"Not the mid-latitudes where the drilling is being done, which is interesting," said James Butler, head of global monitoring for NOAA.

The EPA has passed new rules on oil and gas emissions that are scheduled to go into effect in 2015, and in 2012 it reached legal settlements that will require companies to spend more than $14 million on pollution controls in Utah and Wyoming. Colorado, Texas and other states have passed more stringent rules, too.

Carlton Carroll, a spokesman for the American Petroleum Institute, a lobbying group for the oil and gas industry, pointed out that many companies started developing the equipment to limit methane and other pollution before the EPA rule.

"API is not opposed to controls on oil and gas operations so long as the controls are cost-effective, allow sufficient lead

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time and can be implemented safely," Carroll said in an email, adding that the industry has requested some technical clarifications to the rule and is working with EPA on those.

Prasad Kasibhatla, a professor of environmental chemistry at Duke University, said that controlling gas drilling pollution is "technically solvable" but requires close attention by regulators.

"One has to demonstrate that it is solved, and monitored," he said.